

MODIS Team Meeting Minutes

Minutes of the MODIS Team Meeting held on Tuesday October 25, 1994.

Action Items:

94. Provide a detailed (high fidelity) analysis of scatter in the scan cavity. The results would determine the need for PF near field scatter measurements vs scan angle. Assigned to Guenther 8/23/94 Preliminary results due 10/15/94. Final due 2/28/95.
95. SBRC & GSFC to team to investigate possible corrections for the spurious response effects in the filters. Assigned to Waluschka 8/23/94. Due 10/25/94
97. Review the SBRC IR&D report on the Indium Bump process and provide comments on acceptability. Assigned to Roberto, Martineau, and Ellis 9/30/94. Due 10/ 4/94
98. Review August schedules and provide a summary of subsystem schedule status. Assigned to Davis, Ferragut, Waluschka, Martineau, Safren and Daelemans 8/30/94. Due 9/20/94. Waluschka, Martineau, and Safren have complied.
100. Devise an electronic distribution and communication system to use when GSFCMAIL shuts down. Assigned to Bauernschub 10/25/94. Due 11/29/94.
101. Provide an assessment of the SBRC test plan to measure radiometric accuracy as a function of scan angle position (sections 11.6.3 and 11.7 of the Performance Verification Plan). Assigned to Guenther 10/25/94. Due 11/29/94
102. Review and report on the assigned SBRC test specifications and procedures. Assigned to Waluschka 10/31/94. Due 11/22/94
103. Review and report on the assigned SBRC test specifications and procedures. Assigned to Martineau 10/31/94. Due 11/22/94
104. Review and report on the assigned SBRC test specifications and procedures. Assigned to Ferragut 10/31/94. Due 11/22/94
105. Review and report on the assigned SBRC test specifications and procedures. Assigned to Daelemans 10/31/94. Due 11/22/94
106. Review and report on the assigned SBRC test specifications and procedures. Assigned to Florez 10/31/94. Due 11/22/94
107. Review and report on the assigned SBRC test specifications and procedures. Assigned to Davis 10/31/94. Due 11/22/94

The following items were distributed:

- 1) Weekly Status Report #161
- 2) SBRC Memos submission from week #153
- 3) Minutes of the previous team meeting

Attendees:

✓ Richard Weber	✓ Bruce Guenther	✓ Larissa Graziani
✓ John Bauernschub	✓ George Daelemans	✓ Bob Martineau
Rosemary Vail	Patricia Weir	✓ Bob Silva
✓ Lisa Shears	✓ Mitch Davis	✓ Robert Kiwak
✓ Mike Roberto	✓ Ken Anderson	✓ Harvey Safren
✓ Nelson Ferragut	✓ Rick Sabatino	✓ Ed Knight
✓ Gene Waluschka	✓ Cherie Congedo	✓ Harry Montgomery
✓ Bill Barnes	✓ Jose Florez	Marvin Maxwell
Les Thompson	✓ Gerry Godden	Bill Mocarsky
	Sal Cicchelli	✓ David Jones

MODIS Team Technical Weekly October 28, 1994

General

Gerry Godden, Terry Ferguson, and Tom Kampe will be at Breault Research Organization in Tucson, AZ on Monday October 31. The purpose is to select scatter parameters for the optical train (end to end) and to verify the model configuration to as built.

Several EOS and MODIS personnel will be at El Segundo on November 15 to check out facilities.

Pro E is coming out in a PC version.

Solar Array Reflectance

Bob Frederickson is determining view factors from the scan cavity to the solar array. George Daelemans will determine the maximum solar energy reflected to the scan cavity from the solar array. Results expected about the end of this month.

Spacecraft Roll George Daelemans has run an analysis for a spacecraft roll of 125 degrees. The thermal affects on MODIS are a temperature change of the blackbody of about 1 degree and parts of the scan cavity change about 2 degrees.

Joe Bolek will be determining the maximum spacecraft roll which can be allowed with the current spacecraft design. Results expected by the end of this month. The result is expected to be around 20 degrees. The cost impact of maintaining proper spacecraft control for a roll of 125 degrees is expected to be very large.

Scan Mirror Characterization

Based on the contamination models, a study will be performed to determine the scan mirror performance as a function of scan angle and contamination during the MODIS mission. The goal is to determine whether or not calibration on orbit at additional scan angles will be needed (see spacecraft roll).

Cherie Congedo

Part of the aft optics assembly graphite epoxy structure needed to be cut away because of an interference with a calibration bulkhead strut. Cherie needs all the Pro E drawings to determine if there are any additional interferences. Cherie now has the SRCA Pro E drawings.

Harry Montgomery

Harry has the action items from the MODIS Science Team Meeting. There is concern about the stability of the photodiodes for the SRCA. If these photodiodes are not stable, then a ground solar calibration may be needed.

David Jones

SBRC does not want to vibrate the MEM.

Jose Florez

The SAM and the FAM have been tested over temperature. The MEM is to be tested over temperature this week.

Bob Silva

The printed wiring board contract with Spectra (Gaithersburg, MD) has been canceled. SBRC is now going with one of the Hughe's companies.

Bob Martineau

For the Short/Mid Wave Infrared (S/MWIR) detectors, the decision will be made in a couple of weeks whether or not an additional lot of detectors will be needed for flight model 1 or flight model 2.

In some cases, baking of detector units is being done to see if performance can be improved.

Gene Waluschka

Gene will be looking into a design for the hole pattern for the solar diffuser screen.

Editor's note: GSFC received an email request for this help from SBRC systems engineering on October 24. SBRC would provide any geometry/mechanical information Goddard would need. GSFC is making the assumption that the work performed here would be to design the hole pattern for the screen.

Rick Sabatino

1. The TAC software from SBRC will probably require modification to work on the GSFC machine.
2. There is no formal documentation for the Integration and Alignment algorithms.
3. The TAC person is leaving SBRC on November 11. In the near future, there may not be many people left.
4. The MODIS OASIS software will need to be reworked to be used on the spacecraft.

FPA Interband Crosstalk Spec Change

Systems Engineering has solicited comments from FPA personnel with a copy to GSFC on its intent to modify the FPA spec so that interband crosstalk is measured but not specified. The qualitative requirement would be to design the detector assembly to minimize interband crosstalk. The measurement technique is specified along with a requirement to collect sufficient samples at each position to reduce system noise to one part in 10000.

The following are comments on the proposed change from Bob Martineau:

My understanding of this spec is that it is not a spec. No maximum allowed crosstalk is stated and no crosstalk spec is required to be met. Furthermore I have a problem with calling this an FPA crosstalk spec when the FPA mask and filters are not included. They could potentially have a large effect on FPA system crosstalk.

Performance Verification Plan/Specification Review at SBRC

In a conversation with Duane Bates on October 26, Duane mentioned he plans to email to GSFC comments from the review by Monday, October 31.

Tim Zukowski has provided a list of the action items he took down during the SBRC PVP meeting in an email message dated October 20.

Solar Diffuser Port Scattered Light

SBRC has performed an initial APART stray light analysis of the MODIS solar diffuser path. On October 26, Tom Pagano mentioned that a couple of items need to be checked for this analysis:

- 1) solar energy reflecting off the SRCA fold flat
- 2) scattered light getting back onto the solar diffuser and affecting calibration.

Earth Aperture Scattered Light from Solar Scattering Off Inside of Sunshade at the North Pole

SBRC will be performing an APART analysis of scatter from the earth aperture.

Systems and Calibration Telecon

The telecon was held on October 24. Participants included Jim Young, Neil Therrien, Oscar Weinstein, Tom Pagano, Tom Koch, Ed Knight, Harry Montgomery, and Mike Roberto.

The following are notes on the Systems and Calibration Telecon from Tom Pagano:

Below are minutes from the Monday morning System's Engineering telecon:

E. Knight

- o To J. Mehrten, It doesn't matter to NASA how the second set of ancillary data is imbedded into the data stream. In the same packet is acceptable.
- o Regarding the spectral deviation. Ed asked if we minded approval in only the direction we were out in rather than in both directions (#177#) as asked in the waiver. I responded saying this was OK. Some disagreement in the spectral files: Band 14, and Band 8 to be worked out.

SBRC has the VIS mask data in our model that needs to be provided to NASA.

- o Interested in the noncompliant PC detectors as outlined in PL3095-S04189.

T. Pagano memo out addressing this: PL3095-M04286.

M. Roberto

- o Interested in the impact of solar flux onto the nadir aperture sunshade and door on solar calibration.

SBRC is doing an analysis on this, but would welcome concurrent NASA involvement.

- o Purging of the instruments in the ferring is difficult to do. Does MODIS need it?

SBRC is doing an analysis on this and expects results by Friday.

B. Guenther

- o Asked about the ground calibration of the scan mirror reflectance vs angle in the IR. Concerns include:
a) Number of angles calibrated, b) MODIS instrument temperature variability, c) Background temperature affects on BCS. d) Charge subtraction

SBRC: a) 5 points should be adequate (although PVS says 10), b) MODIS instrument should be at constant temperature throughout tests as well as c) the background. d) Charge subtraction noise should be low, and can be averaged out, our concern is primarily stability.

T. Pagano

- o Regarding the contract modification for installation of the TAC and answering questions on calibration, what is the scope of this activity? I'd like to plan the expenditures and deliverables.

NASA: Basically just install the TAC and answer questions when needed until funds are out. Will work with SBRC on planning.

- o SBRC would entertain any screen designs proposed by NASA. NASA will need to be intimate with the screen illumination geometry to satisfy the needs of their in-flight calibration algorithms; it makes sense for them to propose a screen design.

NASA: Harry would like SBRC to perform this design due to our understanding of the problem. Concern of ability to transfer pre-flight calibration into orbit, particularly with the absence of the solar test on the ground.

N. Therrien

- o Software for the I&A provided to Tim Zukowski to practice and become familiar with what to expect for the TAC. We also provided the simulator to J. Barker. We are updating the algorithm spec 151868.

T. Koch

- o Acquired last data set from the OBA. We aligned the scan mirror to the mainframe. Sorting encoder pulses at this time. Will install the OBA into the Mainframe next week.

J. Young.

- o Will be forwarding a copy of the ATBD Level 1B Today

End of Tom's report.

Mike Roberto October 28, 1994